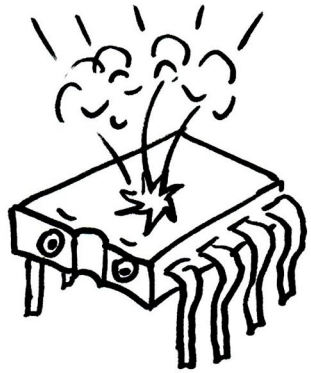
TR-808 bass drum project

handwired perfboard construction

http://ericarcher.net/devices/tr808-clone/

Eric Archer 2009



This analog bass drum circuit is adapted from the schematic in the TR-808 Service Manual. Transistors have been substituted.
It is intended to be close to the original sound.

I built it on PC-4 perfboard. you could use any pad-per-hole 0.1" grid board though. Dont build this on a solderless breadboard - you wont want to take it apart!

The layout doesnt include a power connector. The circuit needs +/-15V or +/-12V. You'll have to add the power connections.
Look carefully at the PWR page. The positive and negative supply rails are shown but not labeled as to which is which.
Remember that pin 8 of the TL072 is (+) and pin 4 is (-)… then you'll see which is which.

And you'll have to add an ouput jack of some sort. for output I just wired up a 3.5mm mono plug run it into a mixer.

If you are planning on triggering the circuit from a logic signal, the easiest way is to tie ACCENT to +12V (+15V), and connect the logic signal to TRIGGER.
This schematic includes my diode-cap-resistor network. This makes trigger behavior independent of pulse width (unless the pulse is super short of course)

I laid this circuit out with larger footprint film caps.

---- construction procedure ---

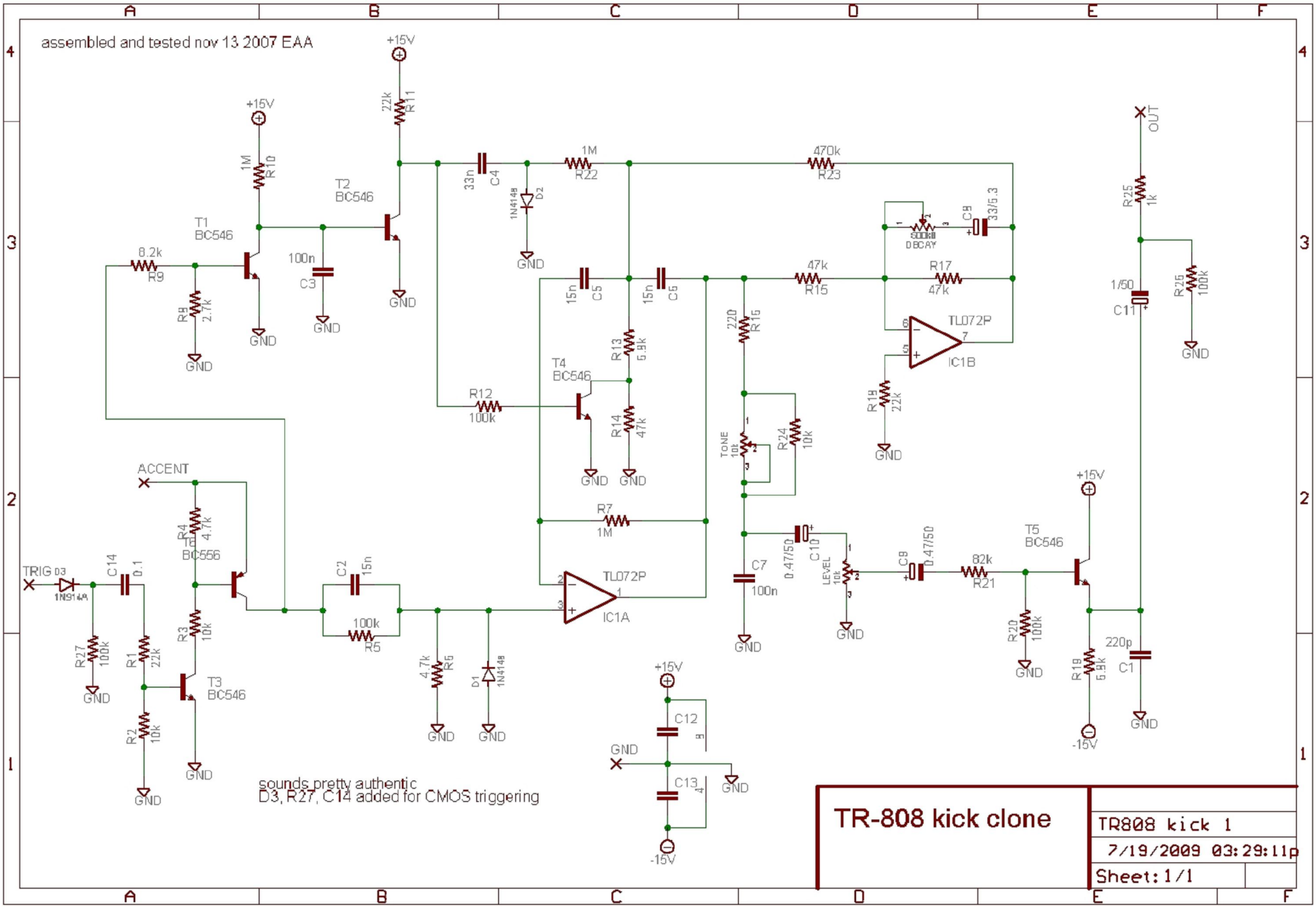
start by printing out the four pages with wiring routing on them.

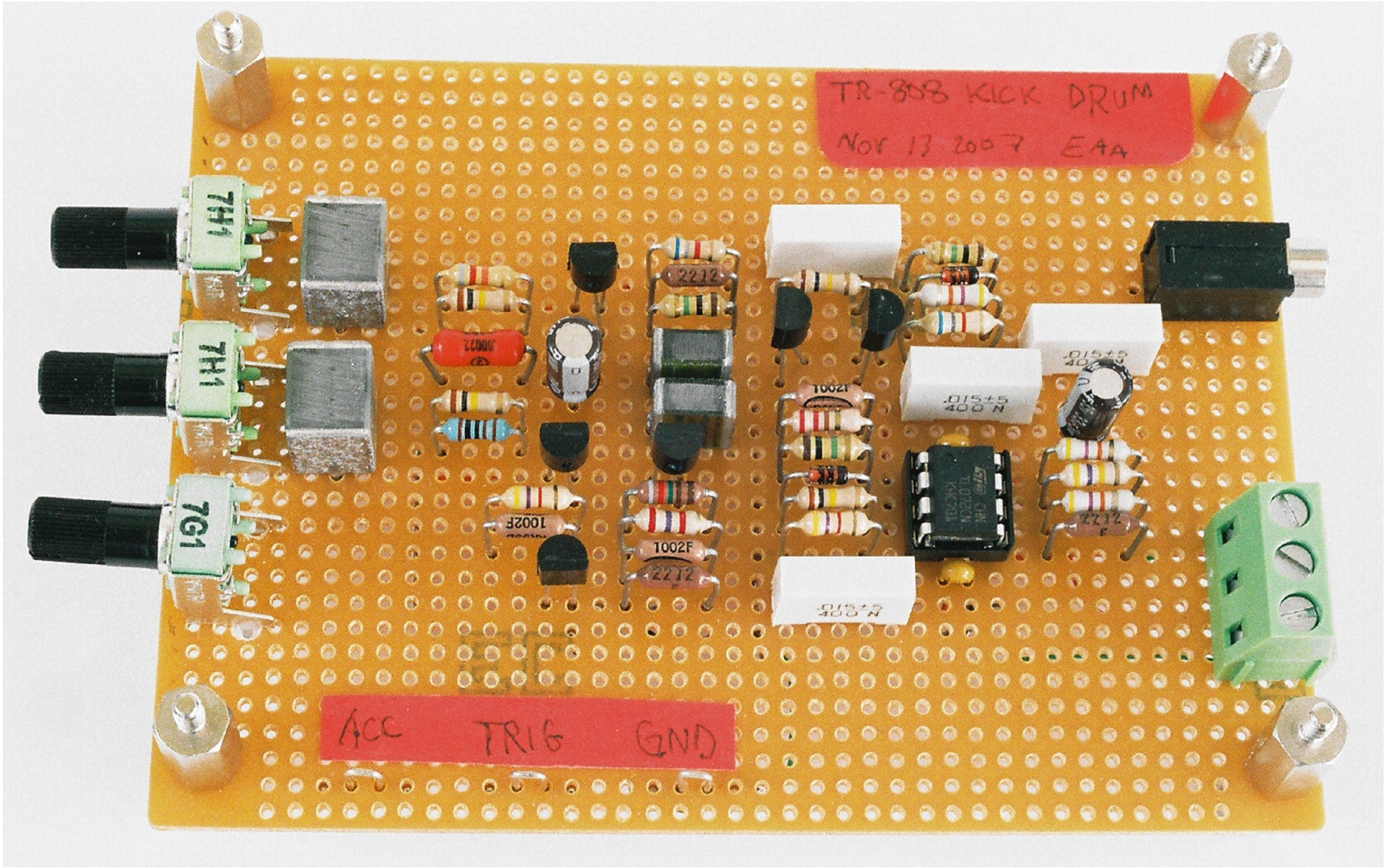
STEP 1: referring to the **placment** and **values** pages, install all the components on the perfboard.

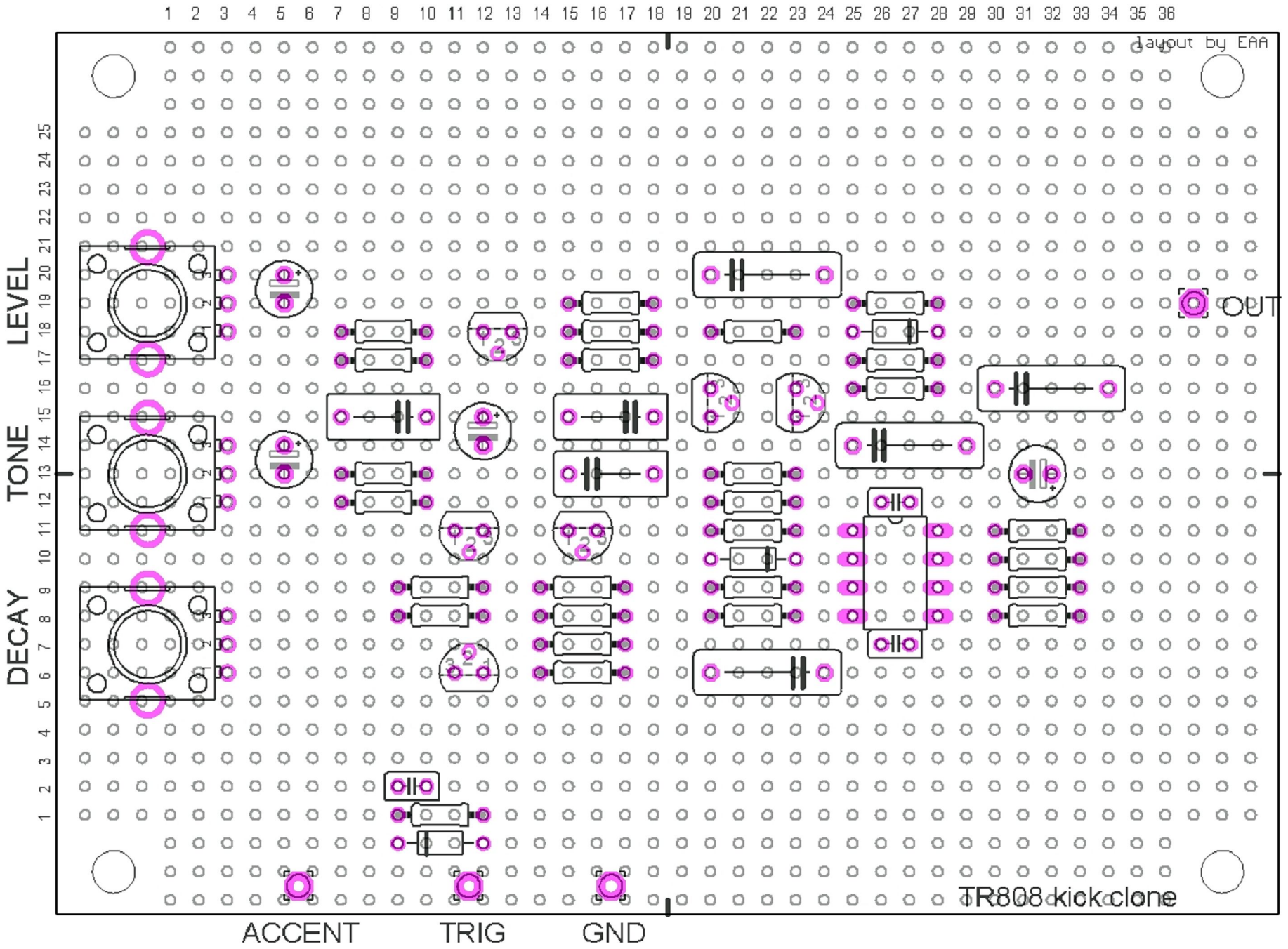
STEP 2: referring to **GND**, **PWR**, **routing1**, and **routing2**, make all the connections that are possible by bending and cutting component leads.
use fine tipped needle nose pliers to bend the leads so they make efficient connections.
make sure you thoroughly heat all solder joints so there arent any surprise open circuits later.

on the printouts, carefully trace all connections as you make them, using a colored pen or highlighter.
that way you can keep track of whats left to do; when all the lines are traced, the wiring is done.

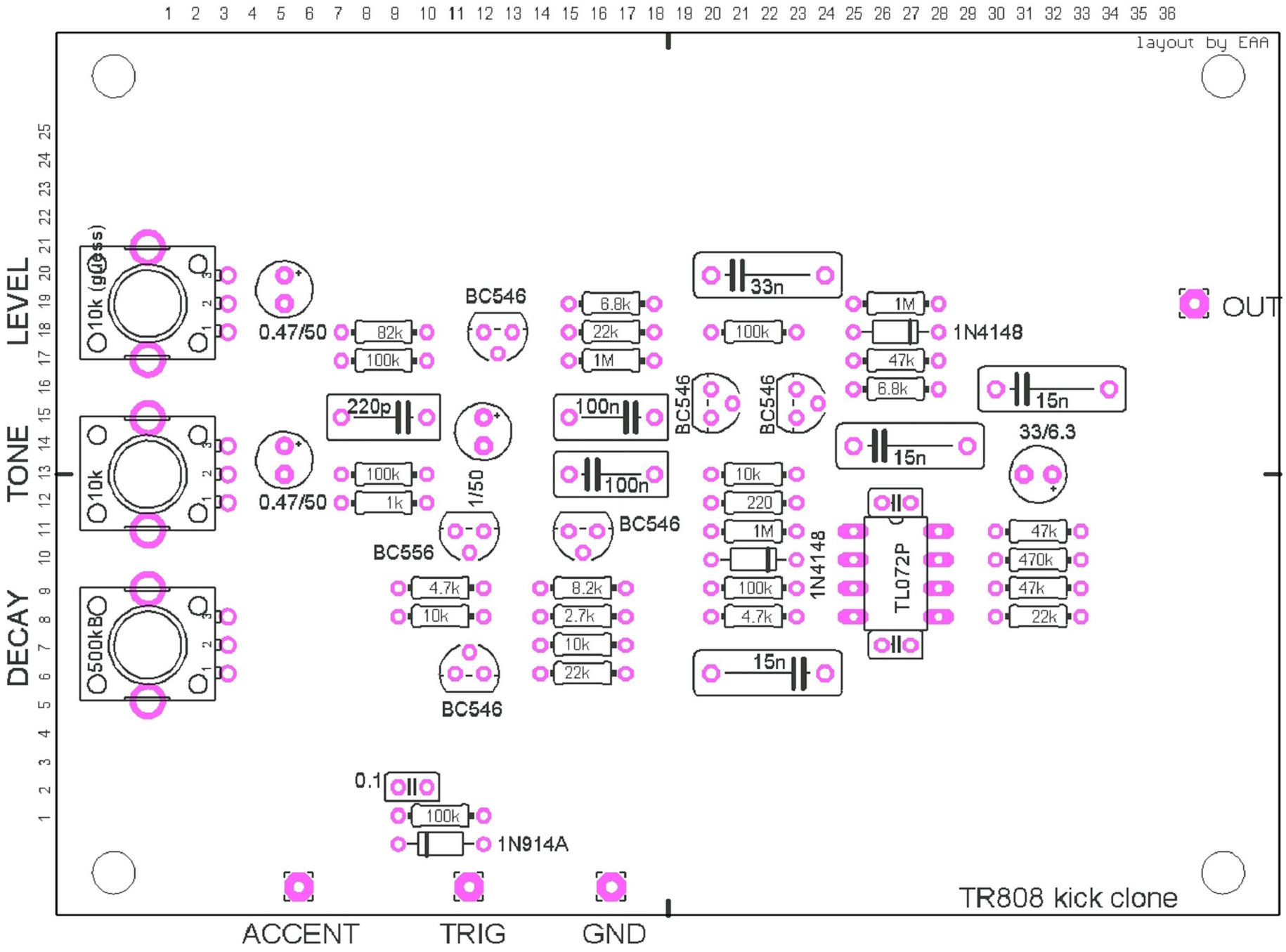
STEP 3: finish the remaining connections using short pieces of wire. 30- or 28- gauge "wire wrap" wire is recommended.
this is solid core wire with high-temperature insulation. to do the wiring reliably, you really need high temperature insulation that doesn't shrink when heated.
Strip the wires carefully so you don't nick the conductor and make an unreliable connection.


assembled and tested nov 13 2007 EAA
+15V
22k
R11
1M
R10
T2
BC546
T1
BC546
8.2k
R9
R8
2.7k
100n
C3
33n
C4
1N4148
D2
1M
R22
470k
R23
47k
R15
R17
47k
C9
33/5.3
500k
DECAY
15n
C5
15n
C6
R13
5.9k
T4
BC546
R12
100k
R14
47k
220
R16
TL072P
IC1B
R18
22k
TONE
10k
R24
10k
OUT
R25
1k
1/50
C11
R26
100k
ACCENT
R4
4.7k
TRIG
D3
1N914A
C14
0.1
BC556
C2
15n
100k
R5
R7
1M
TL072P
IC1A
C7
100n
C10
0.47/50
LEVEL
10k
C8
0.47/50
82k
R21
T5
BC546
R27
100k
R1
22k
R3
10k
T3
BC546
R2
10k
4.7k
R6
D1
1N4148
R20
100k
R19
5.9k
220p
C1
C12
C13
-15V
sounds pretty authentic
D3, R27, C14 added for CMOS triggering
TR-808 kick clone
TR808 kick 1
7/19/2009 03:29:11p
Sheet: 1/1

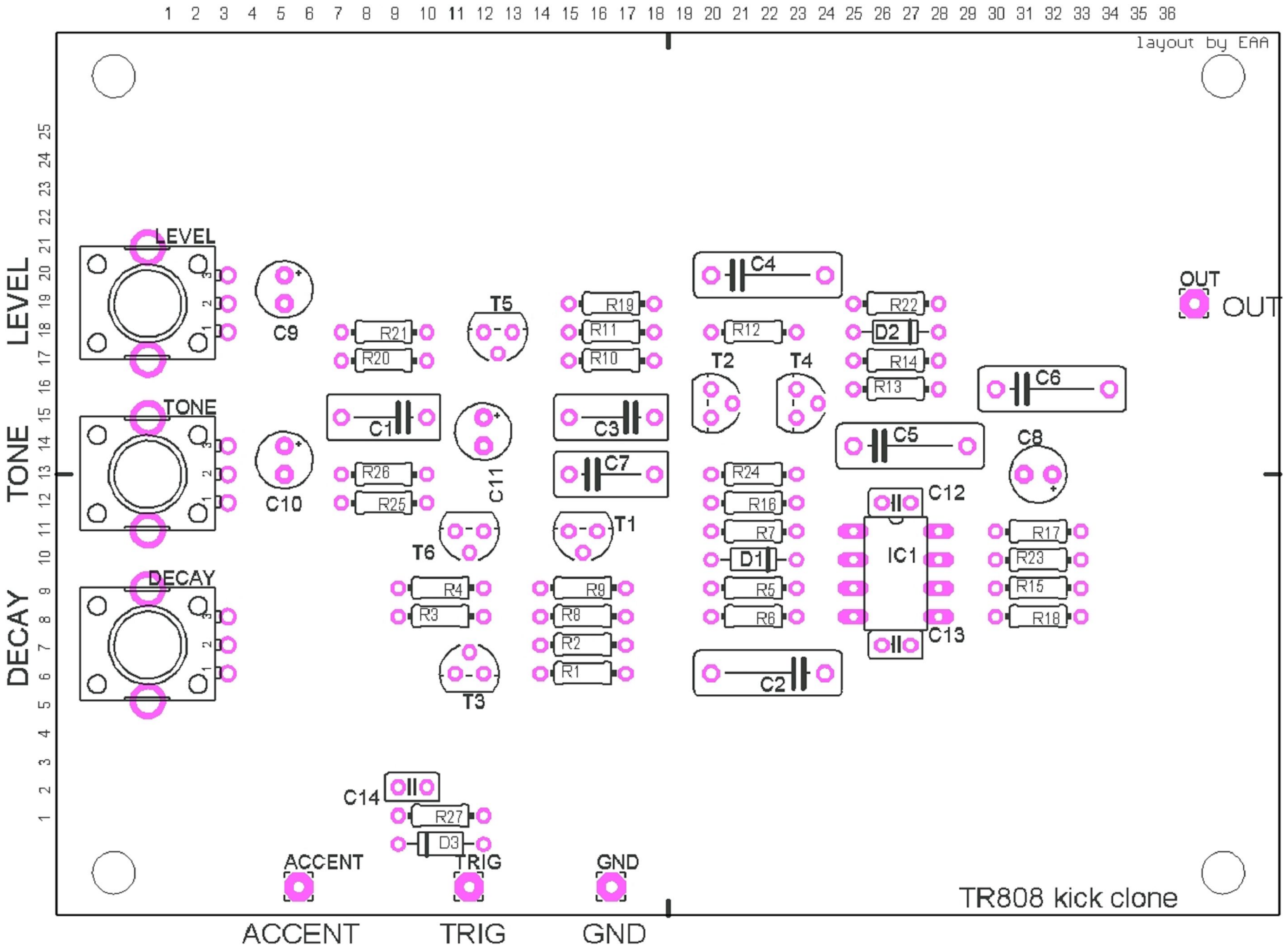

TR-808 KICK DRUM
NOV 13 2007 EAA
ACC TRIG GND
7H1
7H1
7G1
1002F
1002F
2212
2212
.0015+5
400 N


layout by EAA
LEVEL
TONE
DECAY
OUT
ACCENT
TRIG
GND
TR808 kick clone

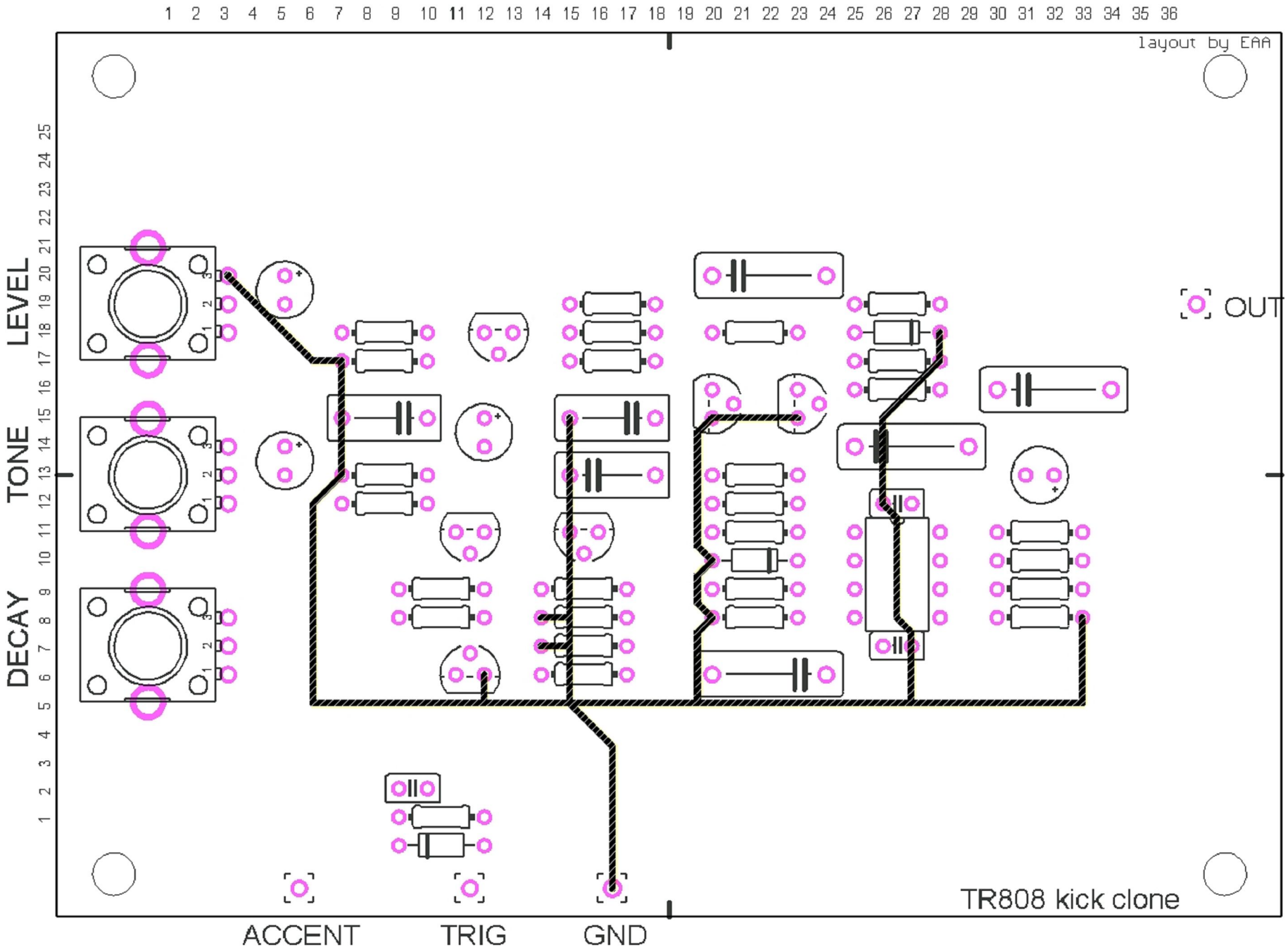
placement


layout by EAA
LEVEL
TONE
DECAY
10k (gloss)
10k
500k
0.47/50
82k
100k
220p
100k
1k
0.47/50
BC546
1/50
BC556
4.7k
10k
BC546
6.8k
22k
1M
100n
100n
BC546
8.2k
2.7k
10k
22k
33n
100k
BC546
BC546
10k
220
1M
100k
4.7k
15n
1N4148
1M
1N4148
47k
6.8k
15n
15n
33/6.3
TL072P
47k
470k
47k
22k
OUT
0.1
100k
1N914A
ACCENT
TRIG
GND
TR808 kick clone

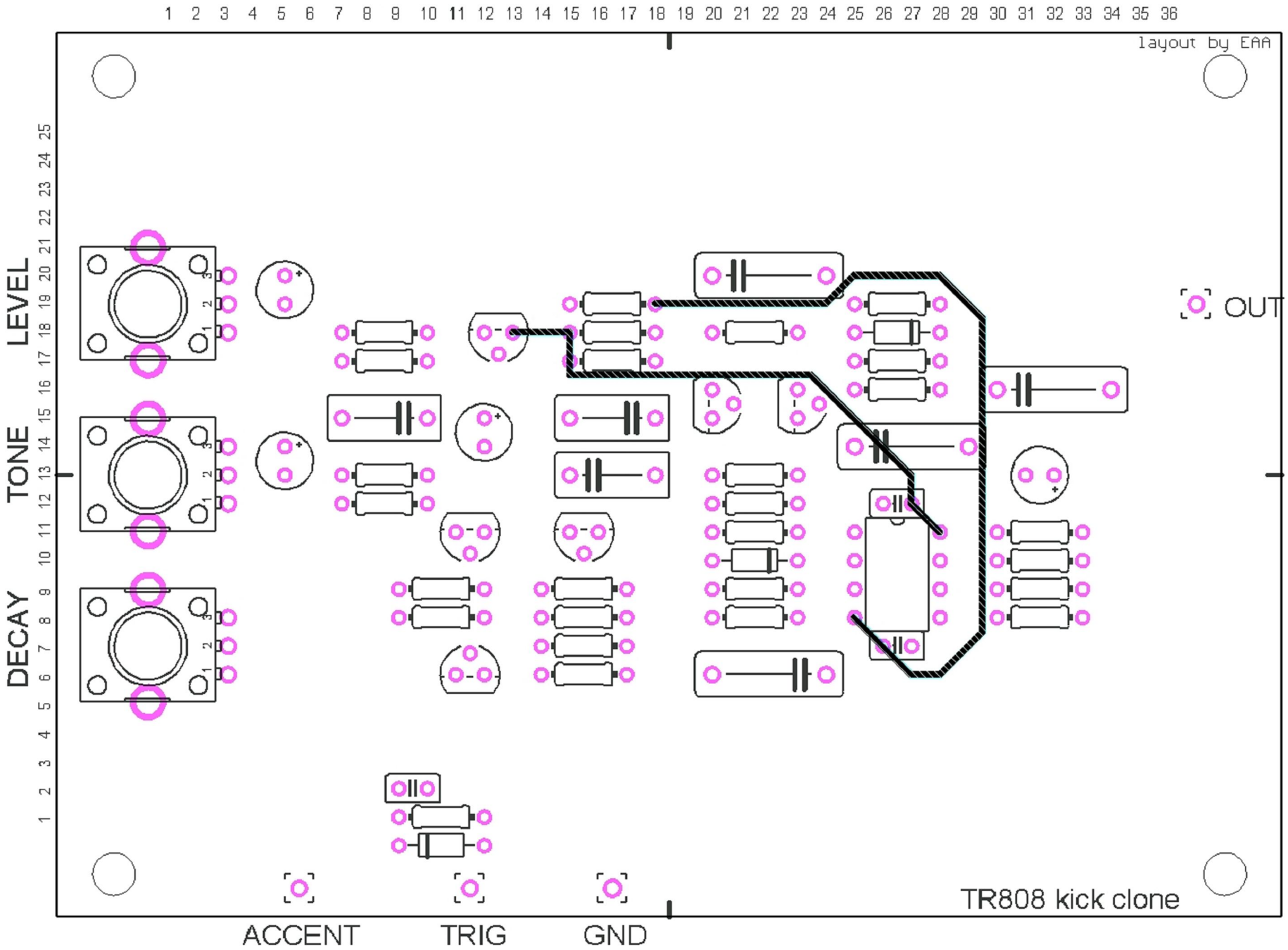
values


layout by EAA
LEVEL
TONE
DECAY
C9
C10
C1
C11
C3
C7
C4
C2
C5
C6
C8
C12
C13
IC1
T1
T2
T3
T4
T5
T6
D1
D2
D3
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R17
R18
R19
R20
R21
R22
R23
R24
R25
R26
R27
C14
OUT
ACCENT
TRIG
GND
TR808 kick clone

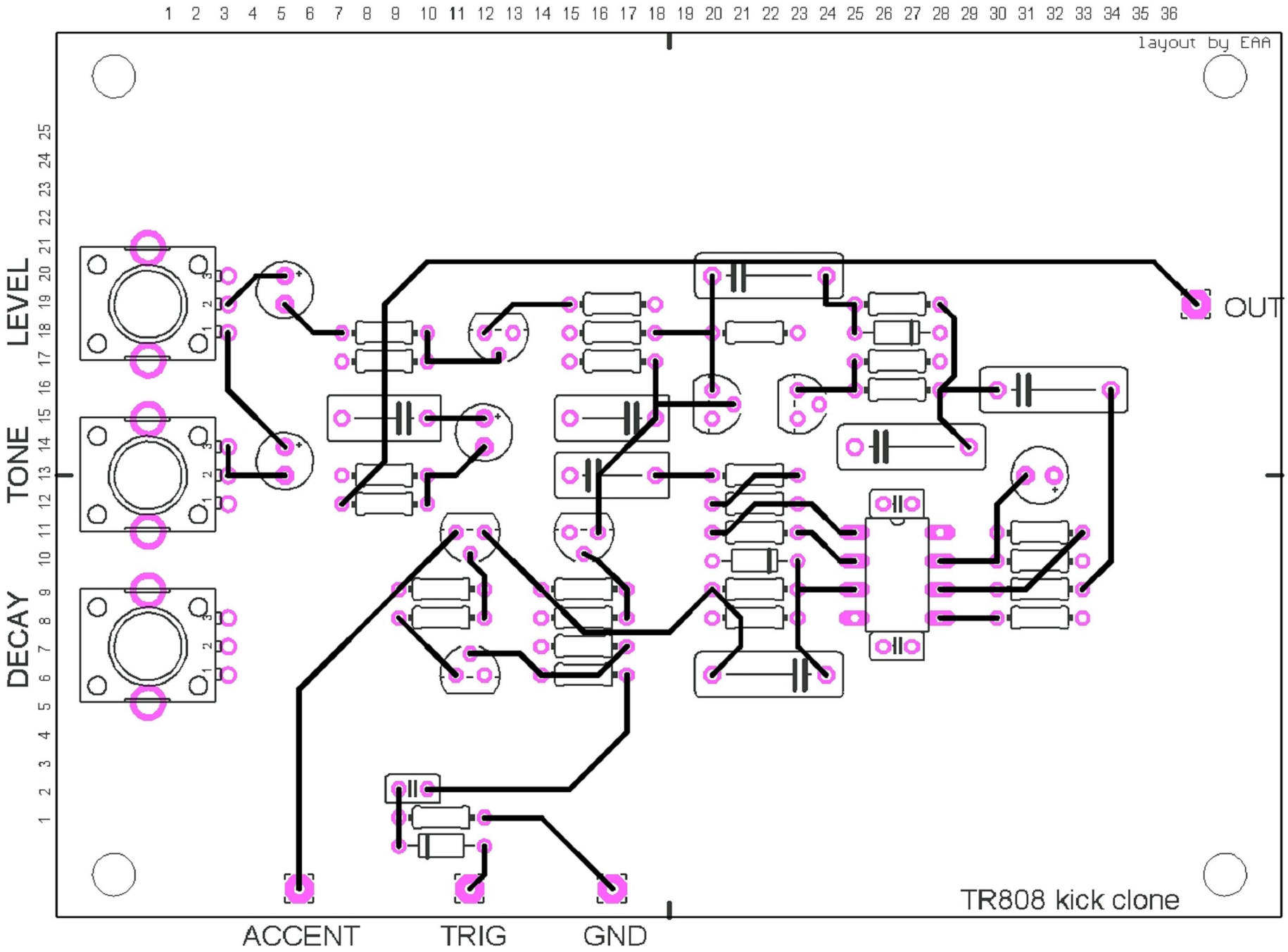
names


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
layout by EAA
LEVEL
TONE
DECAY
OUT
ACCENT
TRIG
GND
TR808 kick clone

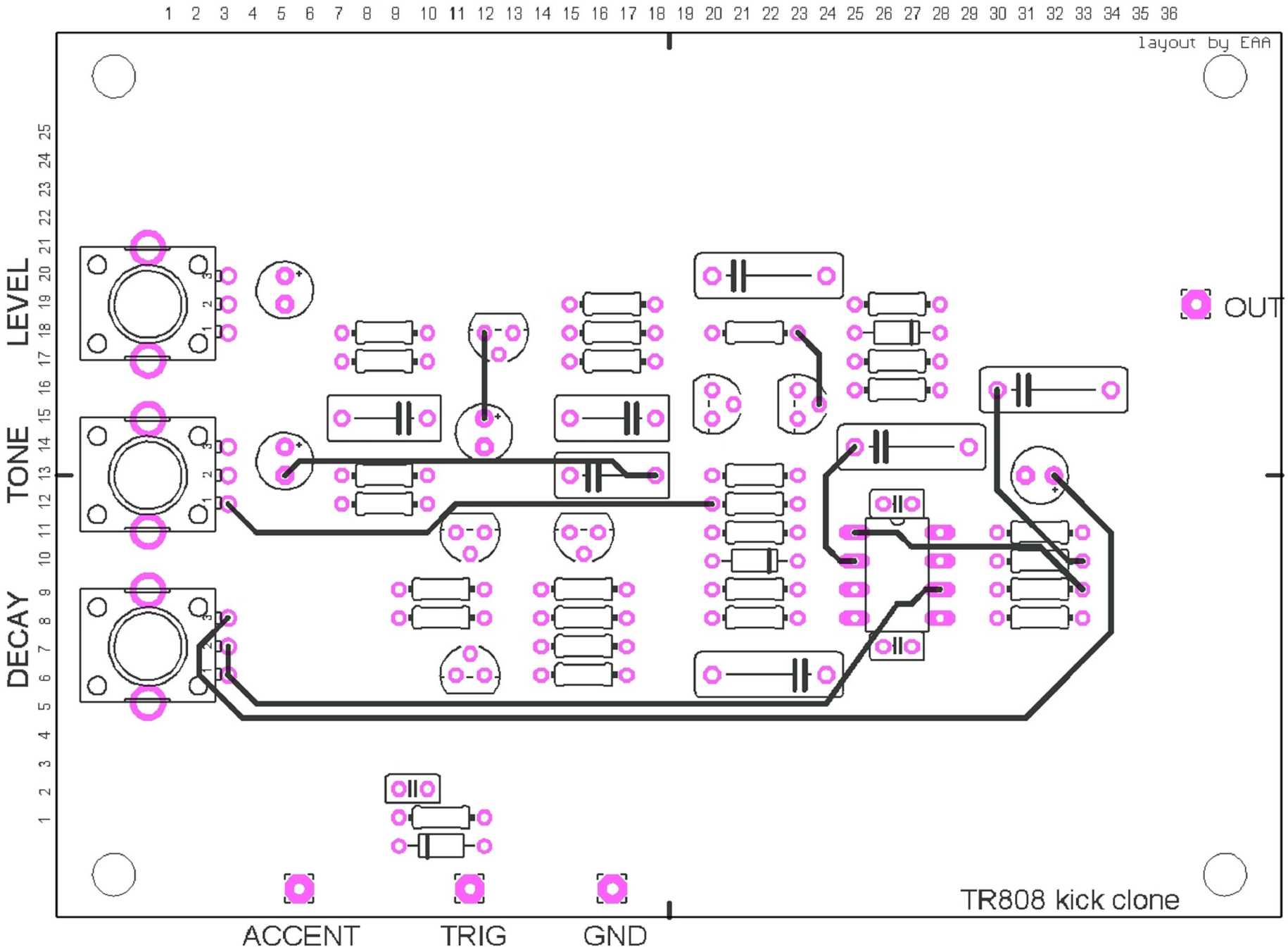
GND


layout by EAA
LEVEL
TONE
DECAY
OUT
ACCENT
TRIG
GND
TR808 kick clone

PWR


layout by EAA
LEVEL
TONE
DECAY
OUT
ACCENT
TRIG
GND
TR808 kick clone

route1


layout by EAA
LEVEL
TONE
DECAY
OUT
ACCENT
TRIG
GND
TR808 kick clone

route2

Transistors:
5x 2SC945 (P) ***NPN***
1x 2SA733 (P) ***PNP***

2x 1n4148 ***Diode***
1x TL072 ***Dual OP-AMP***

Electrolytic Cap:
2x 0,47µf/50v
1x 1µf/50v
1x 33µf/6,3v
2x 47µf/16v (PWR bypass)

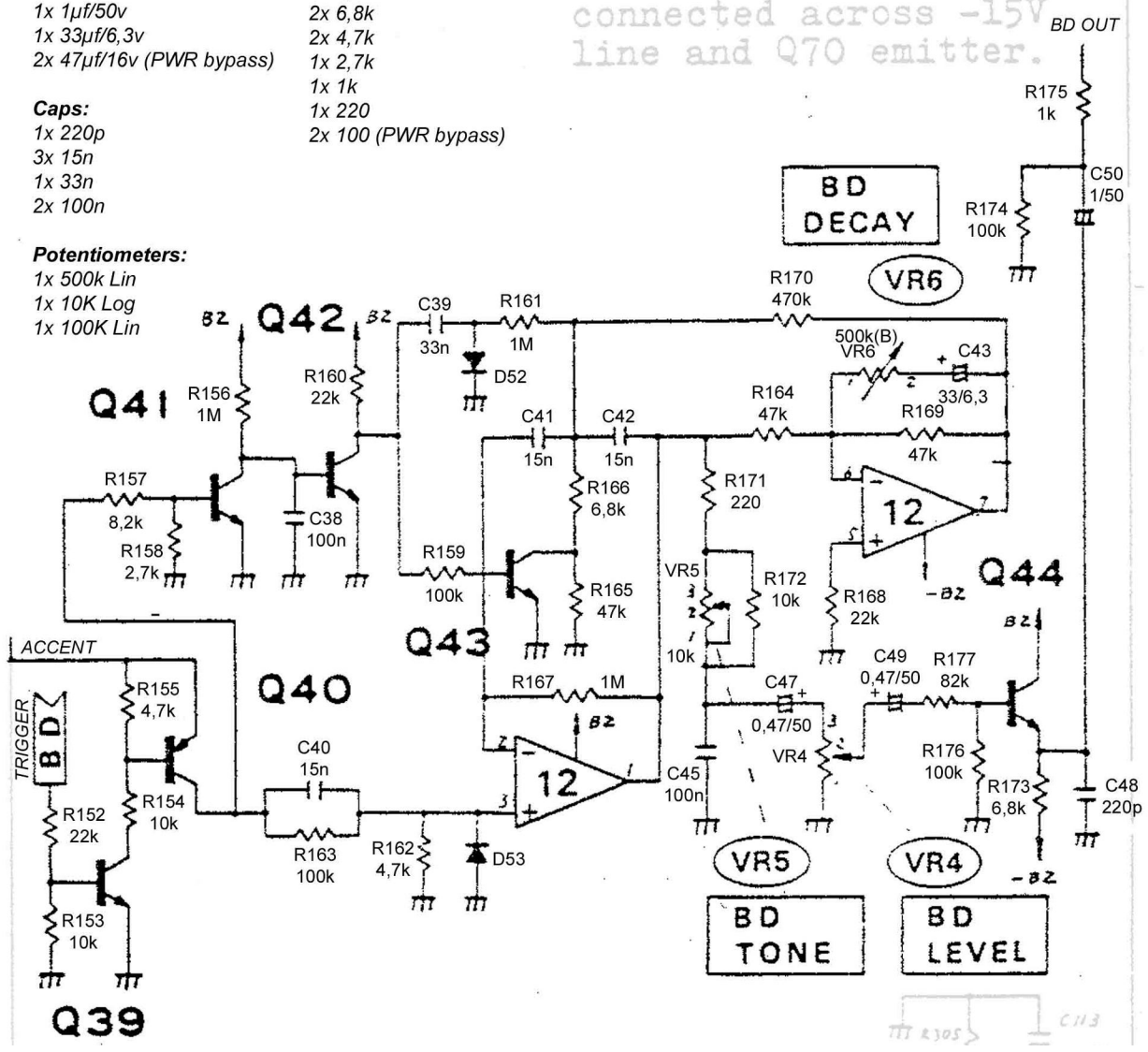
Caps:
1x 220p
3x 15n
1x 33n
2x 100n

Potentiometers:
1x 500k Lin
1x 10K Log
1x 100K Lin

Resistors 1/4W 1%:
3x 1M
1x 470k
4x 100k
1x 82k
3x 47k
3x 22k
3x 10k
1x 8,2k
2x 6,8k
2x 4,7k
1x 2,7k
1x 1k
1x 220
2x 100 (PWR bypass)

C61 .0068 to .015
R191 8.2k to 10k
R200 47k to zero

C P
10k(called R200) is
connected across -15V
line and Q70 emitter.



original